

ABSTRACT

A wide-stripe diode-laser includes a lower cladding region, a lower waveguide region, an active region, an upper waveguide region, and an upper cladding region all comprising semiconductor layers epitaxially grown on a semiconductor substrate. An elongated rectangular electrode on the upper cladding layer defines a stripe or pumped section. Adjacent the electrode is an unpumped section in which at least the quantum-well layer has been treated to cause the active region to be disordered. In this unpumped section, at least one area of the area is etched to a depth equal to or less than the thickness of the cladding region. The etched area provides a diverging lens effect in the waveguide region. The diverging lens effect expands the fundamental mode of the laser in the stripe to a width sufficient to improve single mode performance.